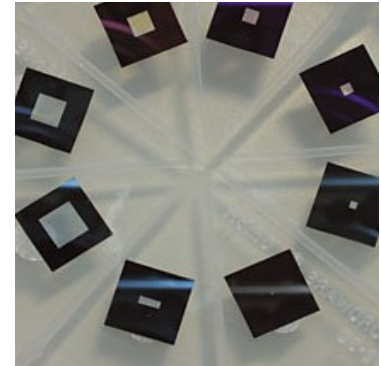


Status of Super-Thin Beam Monitors



1. Beam Monitoring Foils
2. Next steps
3. Discussion



Alex Howard

Beam Monitoring Foils

- As mentioned last time – the idea:
 - very thin membrane made from AlN or SiN
 - coated with electrode arrays: position information/beam profile
 - Signal would be a **current** measurement induced on the electrodes
- Thickness of material only **50 – 150 nm**
 - **Choice of material means it can be quite flexible and even withstand 1 bar**
 - **Chemical etching facilitates achieving such thin wafers**
 - **However, still fragile if touched (like bursting a bubble)**
- I contacted two companies and received positive responses (silson, ametek)
- Cost seems ~ 100 – 300 GBP, depends on failure rate, thickness and diameter
- Some work required to define:
 - Electrode structure
 - Diameter
 - Thickness (i.e. pressure gradient)
 - Fixation – Gasket (window)? Glued? Inserted/free-standing?
 - Read-out scheme (connections, electronics)

Next Steps

- Needs some effort to take this further...
- Definition:
 - Thickness (pressure?)
 - Diameter + square or round?
 - Electrode Structure
 - Read-out concept
- Both companies seem willing, but should follow-up and produce prototypes
- Clear requirements and feasibility study